



Fostering a new generation of Remote Sensing Scientists

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Dedicated to Guy for his sense
of urgency and his tireless effort
in connecting scientists



ITSC-15 Maratea, Italy 4 - 10 October 2006



Presented Topics

SSEC activities geared to the fostering of a new generation of remote sensing scientists.

- Organization of Scientific Workshops
- Organization of Training courses



Advanced High Spectral Resolution Infrared Observation Workshops

- 1st meeting in Madison, Wisconsin in 2003
- 2nd meeting in Ravello, Italy in 2004
- 3rd meeting in Madison, Wisconsin in 2006



Workshop for Soundings from HSR observations

<http://www.ssec.wisc.edu/hsr/meetings/2006/>

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3rd Annual Advanced High Spectral Resolution Infrared Observations Workshop

- Location
- Agenda
- Register
- Presentations
- Accommodations
- Contact Info
- Pictures

SSEC Last updated 03-May-2006 by SSEC Webmaster CIMSS

<http://www.ssec.wisc.edu/hsr>



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Workshop Objectives

- The workshops are organized in coordination with the ITOVS activities and aim to:
 - ✓ Provide an opportunity for the scientists in the area of high spectral resolution IR observations to discuss advanced topics on a regular basis.
 - ✓ Create an opportunity to connect leading scientists in the field to scientists relatively new to hyperspectral IR remote sensing.
 - ✓ Facilitate communication between leading groups at international level.

Key Features

- Relatively small group of scientists
 - ✓ Average number of attendees: 40;
keep it sizeable
- Specific and focused topics
 - ✓ Only hyperspectral related science;
keep it focused
- In depth analysis of scientific issues
 - ✓ Invited speakers;
 - ✓ Presentations between 45 and 60 minutes;
 - ✓ Group discussion sessions;
invest in quality



Direct Results

- The workshops have succeeded in:
 - ✓ Gathering together international scientists;
 - ✓ Promoting the discussion on advanced issues in hyperspectral remote sensing;
 - ✓ Connecting different generations of scientists involved in hyperspectral remote sensing;
 - ✧ In three years 20% (about 15 out of 75) of talks were presented by scientists relatively new to the field.

General Considerations

The workshops have proved that:

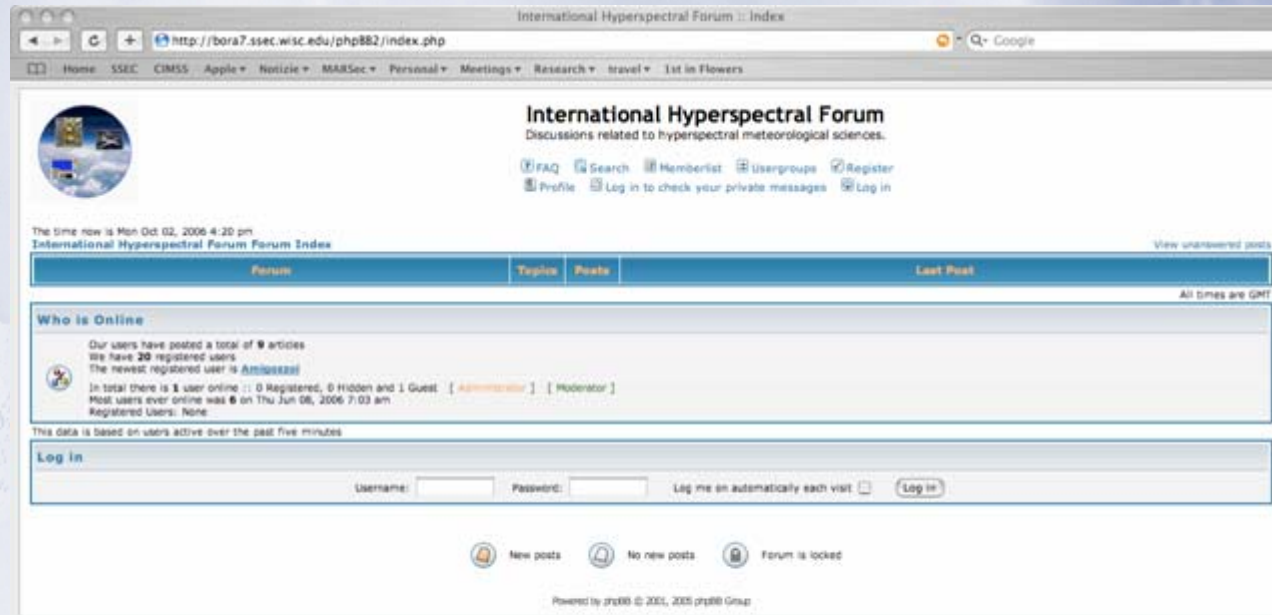
- Providing opportunities to gather together the hyperspectral community facilitates the exchange of ideas and the discussion of advanced issues;

However:

- Agreement upon common action items and/or proceeding in common initiatives is not always easily achievable;
- There is still a need to better capitalize on these opportunities;

An example of a missed opportunity

- At the last workshop a Forum has been created to provide a relatively easy to use tool to exchange ideas, information, and software among scientists;
- So far it has not been used only by two people



<http://www.ssec.wisc.edu/hsr/forum>

The ITOVS community has a long tradition in breaking barriers to promote collaborations. It is a truly remarkable example of what level of collaboration can be achieved. However some communication issues remain and become more and more relevant as the globalization process proceeds.

What makes communication and coordination at international level difficult?

- Lack of time
- Individual Formation
 - ✓ Traditional Education System mainly based on individual efforts in solving complex problems.
- Individual interests

Promoting the concept of collaboration for new generation of Remote Sensing Scientists

- SSEC has a long tradition of excellence in outreach and educational related activities;
- In the last five years SSEC has heavily invested international courses (hereafter REMOTE SENSING SEMINARS) on remote sensing which emphasize collaboration;
- 16 courses were offered in the last 5 years in 10 different countries (Italy, China, South Africa, Norway, Poland, U.S., Australia, Russia, India, Costa Rica)



Seminar Objectives

- The main objectives of the RSS are:
 - ✓ Promote the dissemination of knowledge in environmental remote sensing
 - ✓ Promote the use of satellite data
 - ✓ Promote the concept of collaboration between students and young researchers that represent the next generation of environmental remote sensing scientists



RSS History

- The Remote Sensing Seminars started with an initiative of Prof. P. Menzel in 2001, but their roots go well further back in SSEC tradition;
- The idea was to make knowledge, educational material, data, and software, freely available to international students;
- Since then the seminars developed into an itinerant school;
- L. Gumley and A. Huang initiated a new branch of the seminars more focused on operational aspects, but using the same approach and philosophy adopted by P. Menzel.
- In the last five years courses have been offered on demand, at a constantly increasing rate, all over the world;



Organization

Remote Sensing Seminars

Remote Sensing
Theoretical Basis

Lectures
Labs (MODIS, AIRS, MSG)

Group Projects

Longer courses (6-10 days),
2 teachers, 3 tutors selected
among previous courses participants

Direct Broadcast
Data Processing and
Applications

Lectures
Labs (MODIS, AIRS)

Short intensive courses,
4 to 5 teachers

Key Features

- On average 10 participants per teacher (**sizeable**);
- Courses are tailored according to the needs of the hosting institutes and of the participants (**focused**);
- Locations are carefully selected to avoid, when possible, large cities and to privilege small, isolated facilities;
- Teachers and participants whenever possible share the same accommodations and most of the free time;
- Along with training of participants, there is a gradual effort in time to turn some of the students into tutors, and some of the tutors into teachers: training future trainers (**invest in quality**);



Direct Results in Numbers

- 16 courses were offered since 2001, and 3 are on the way;
- More than 400 participants from about 20 countries (120 participants only in Italy, that is a consistent share of the next generation of Italian remote sensing scientists);
- 8 participants out of 5 seminars, became tutors and 2 of them lecturers;
- 6 former participants visited SSEC for short or long term collaborations;



Indirect Results

- Promoting communications
 - ✓ 2500 e-mail exchanged between participants in 5 years (1225 only among the Maratea participants)
- Having an impact on the next generation of Italian remote sensing scientists by providing connecting opportunities
 - ✓ In this meeting 6 out of 10 contributions (oral presentations and posters) from Italian scientists are provided by people who participated to or organized at least one of the RSS
- Teacher Pride
 - ✓ The SSEC director, the CIMSS director and former director proudly have RSS posters and pictures signed by participants hanging in their offices



CIMSS Director's Office

SSEC Director's Office



Former CIMSS Director's Office



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Financial support

- SSEC is currently supporting 5 to 6 seminars per year:
 - ✓ On average 3 scientists per seminar per 7 days on site and about 14 days of preparation (salaries are generally covered by outreach component of grants at SSEC);
 - ✓ Travel expenses are usually (but not always) paid by international hosting institutes;
 - ✓ Teachers (scientists) do not receive any extra compensation and some time volunteer their own vacation time;

For 2007 there are already 3 seminars scheduled (India, Argentina, Italy)

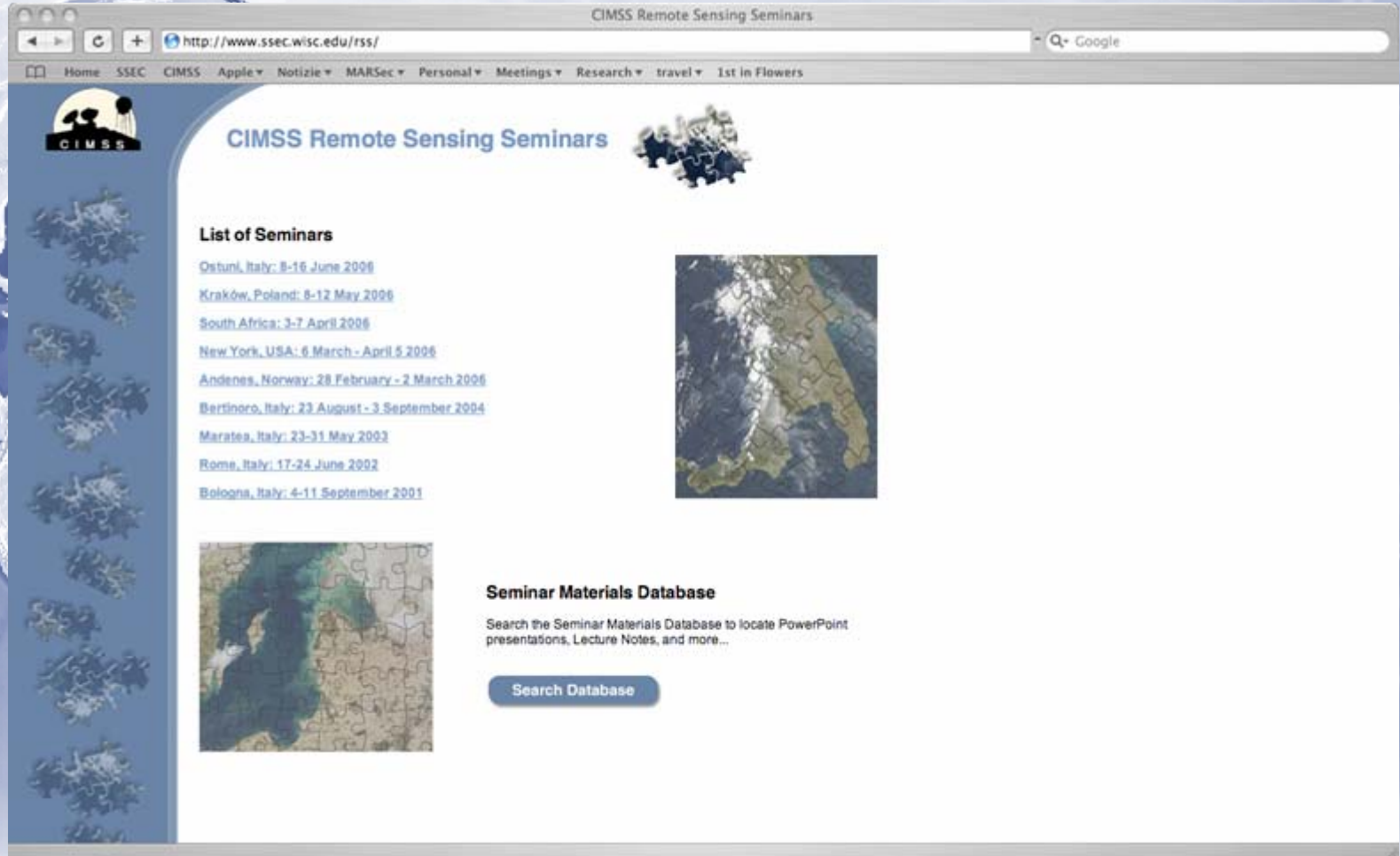


Future Plans

- In order to sustain and improve this effort we are in the process of:
 - ✓ Looking for opportunities to fully support the training activities in a stable way;
 - ✓ Creating the *Suomi Center for Training in Environmental Remote Sensing*;
 - ✓ Targeting more efficiently students and researchers from developing countries;
 - ✓ Involving more actively U.S. students in the training activities;
 - ✓ Re-designing the RSS website (<http://www.ssec.wisc.edu/rss>)



The New Web Page



The screenshot shows a web browser window with the address bar displaying <http://www.ssec.wisc.edu/rss/>. The browser's menu bar includes Home, SSEC, CIMSS, Apple, Notizie, MARSec, Personal, Meetings, Research, travel, and 1st in Flowers. The page content features the CIMSS logo, a navigation menu, and a main heading "CIMSS Remote Sensing Seminars" with a puzzle graphic. Below this is a "List of Seminars" with links to various events: Ostuni, Italy (8-16 June 2006), Kraków, Poland (8-12 May 2006), South Africa (3-7 April 2006), New York, USA (6 March - April 5 2006), Andenes, Norway (28 February - 2 March 2006), Bertinoro, Italy (23 August - 3 September 2004), Maratea, Italy (23-31 May 2003), Rome, Italy (17-24 June 2002), and Bologna, Italy (4-11 September 2001). To the right of the list is a puzzle image of Italy. Below the list is another puzzle image of Europe and a "Seminar Materials Database" section with a "Search Database" button. The text in the database section reads: "Search the Seminar Materials Database to locate PowerPoint presentations, Lecture Notes, and more..."



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Conclusions

- There is a need to improve collaboration at international level and to invest more time and resources in promoting more efficient communications among scientists;
- SSEC is tackling the problem supporting the organization of workshops and training courses aimed to share knowledge and to educate the new generations of scientists to higher standards of collaboration.





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International TOVS Study Conference, 15th, ITSC-15, Maratea, Italy, 4-10 October 2006
Madison, WI, University of Wisconsin-Madison, Space Science and Engineering Center,
Cooperative Institute for Meteorological Satellite Studies, 2006.